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Vol. XIV, No. 11. May 24, 1917

THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

CONSCIOUSNESS—WHERE IS IT?[1]

I SUPPOSE that even a behaviorist will recognize a difference between having a toothache and seeing (or, perhaps, hearing) your neighbor have a toothache. This difference I shall call the difference between the point of view of the agent—or, it may be, the patient—and the point of view of the observer. And in attempting to show where consciousness may be found, I shall take as my point of departure the agent's point of view rather than the observer's. Not, perhaps, because consciousness may not be defined and distinguished by an observer, but because it can not be distinguished by an observer unless he is also an agent.

This is my objection to the method of distinguishing consciousness by reference to the specific mode of response belonging to creatures having a nervous system. What is this specific mode of response, and how does it differ from the responses of waterfalls and steam-engines? It seems that those who resolve consciousness into a specific response are unable to specify the response; and I believe that they could not distinguish conscious from unconscious responses without presupposing just that "inner" point of view which they seek to define away. I can imagine a similar problem. Suppose that we are asked to explain the difference between written language and other marks that may be made upon paper. The answer may be that language is made up of the specific marks, or relations of marks, that have meaning. But, of course, any marks whatever may have meaning—if only we have found the point of view of the person to whom they are significant. There is no specific grouping of marks necessarily peculiar to language. Neither, I venture to say, is there any specific form of reaction peculiar to a nervous system. The sounds uttered by the creature with the nervous system may be English, Chinese, or mere gibberish. To one who already attaches meaning to them, they indicate consciousness; and to him they are also specific. To any one else they are not even specific. Gibberish, for example, is never specific.

[1] Read at the meeting of the American Philosophical Association, Columbia University, December, 1916.

Accordingly, in seeking an answer to the question, Consciousness —where is it? I have in mind, at the outset, at least, not so much my neighbor's consciousness as my own. Where, in the world of my experience, do I find what I call my consciousness? First I shall reply, Not in any so-called "mental states," as distinguished from corresponding physical things—not in any specifically "mental" images, sensations, impressions, or presentations. That is to say, I agree with those who hold that when we perceive a chair, what we have before us is not a perception of a chair, but a chair. And I should say the same thing of memory of the past. When I remember what happened last Christmas, I do not have a "mental image" of last Christmas, by means of which I arrive at the real events of last Christmas; on the contrary, I am living in last Christmas, in the same way as I am living in to-day. In other words, I find in my experience no series of "inner experiences," such as Kant assumes, which are distinct from a parallel series of "outer experiences." My perception of things is not a perception of perceptions, but a perception of things.

And if I do not find my consciousness in any such mental states as "perceptions" or "presentations," neither do I find it in any other mental states, called feelings or emotions. Those who fail to find their consciousness in perceptions may take up as a second line of defense the position that, at any rate, in their emotions they have something peculiarly and exclusively mental. If they have no cognitive states which are numerically distinct from the object known, at least they have other mental states to which there is no corresponding object whatever. It seems to me, however, that after James's theory of emotion this distinction is no longer tenable. James has shown, I should say, that emotion, whatever else it may be, is a consciousness of bodily movement. Now, the consciousness of bodily movement is by no means the same as unconscious bodily movement—just as the perception of a chair is a different fact from the unperceived existence of a chair. But just as the perception of the chair is not to be found in a state numerically distinct from the object chair, neither is the emotion to be found in any state numerically distinct from the bodily movement of which it is the consciousness. The point of the matter is that all consciousness is in varying degree—cognition more clearly and emotion less clearly—consciousness of an object. If we are seeking for our realities in clearly marked things, numerically distinct one from another, we are likely to find objects before we find consciousness. Indeed, as regards the prior immediacy of mental states, it strikes me always as an interesting reflection that, although everyone seems to know what we mean by a chair, no one seems to know what is meant by an idea of a chair.

Where in the world, then, is consciousness? I state the question thus, because I wish to ask in reply, Where in the world is it not? When I turn once more to the familiar chair and attempt to describe it, the first thing that I find is that it has legs, arms, back, and seat—very human attributes. And if I try again, resolved now to describe the chair in terms wholly impersonal—well, I seem to find no terms which, in the last analysis, are really impersonal. If, for example, I discard the word "legs" for "uprights," I am reminded that things are upright or the reverse only in relation to the position of the human body. In brief, I can frame no description of the chair without making it to be an object qualified by the fact that it is humanly known. This means that I find consciousness in the chair.

This is, perhaps, to repeat the more or less familiar doctrine that consciousness of the chair is to be found in the meaning of the chair. The use of the term "meaning" raises, however, an important question. Does the meaning of the chair leave the chair unaltered? Those who define consciousness as a relation, and meaning as a relation—the relation, namely, between an object and a living organism—insist also that all relations are external: consciousness of the chair leaves the chair unaltered. Now, as a matter of fact and experience, it is only for the observer—and for him only relatively—that the chair remains unaltered; when I explain the working of an automobile or of a typewriter to a supposedly uninformed neighbor the object is constantly changing for him while it remains nearly the same for me. It is thus an external observer's point of view that is quietly presupposed in the doctrine of external relations and in the definition of consciousness as a relation—as if, somehow, the facts of our world, which each of us perceives for himself, could only be described in the way that they appear to other persons; or, perhaps, to no real person whatever. And it is this point of view which makes consciousness as a relation seem unrecognizable as consciousness. If consciousness is nothing but a casual relation between an object and a living organism, then surely the neo-realists are right in saying that consciousness is not more important than other relations. But it seems to me that we must then go further and ask why the term "consciousness" was ever invented, and why this relation is worth any consideration whatever.

What I would point out, then, is that, from the point of view of the person who is conscious of an object, the meaning of an object is not extrinsic, or additional to, or separable from, the object itself. The chair as perceived is not independent of the meaning of the chair. The chair does not remain the same, for the same person or for different persons, while the meaning changes. The structural detail of the chair is not a constant fact while our idea of its function varies. Nor,

again, is the perceived chair an entity; the meaning, however, a non-entity. Whatever an entity may be, the meaning of the chair is as much or as little of an entity as the perceived chair; for what we perceive varies strictly with the meaning we are able to assign to it.

I find it difficult to illustrate this point forcibly in the case of the chair, just because, in civilized life, the chair is a universally familiar object, which each of us, so far as memory extends, has always known, and the meaning or function of which has remained virtually constant. To measure our consciousness of the chair we should have to compare what we ourselves see in a chair with what is seen by a primitive man who is confronted with a chair for the first time; let it be remembered that to an uncivilized person the function of this piece of furniture is by no means necessarily obvious. We may, however, compare the chair as seen by a mechanically intelligent person with the chair as seen by one, perhaps of the opposite sex, who has no mechanical interest. Suppose I ask such a person how the back of a given chair is supported against the strain imposed by the back of the sitter—obviously, this is one of the chief problems in the designing of a chair. Is the back of the chair of one piece with the back-legs? Or is it a separate piece, and braced? Or is it of one piece and also braced? These, of course, are matters of perception; yet I think you will agree that these questions will elicit various answers, and that the answers will vary according to the ideas possessed by the respondent of the function of the parts in question.

Suppose, however, we take an object which each of us remembers having learned to know. I began to use a typewriter, say, five years ago. I can not now remember how the typewriter looked to me then. But if after the first presentation I had been asked to draw from memory a detailed picture of the typewriter, I am certain that, beyond the general shape of the machine, I should have been able to give you little more than the keyboard and the platen, or roller. My idea of a typewriter was thus little more than an impression of a vague mass of mechanism, of a certain shape, which served the purpose of writing. My picture of a typewriter to-day, though still more or less impressionistic, would be obviously much richer in detail. This difference represents, then, not merely a difference in "knowledge about" the typewriter—to make use of James's distinction—but at the same time a difference in "acquaintance with" the typewriter; it is a difference of perception. Indeed, one way of stating my point is to say simply that acquaintance with an object can not be independent of knowledge about it. Nor can knowledge about be independent of acquaintance with. For, while my perception of the typewriter has developed in the multiplication and in the coordination of details, my conception of its function has similarly developed.

In noting one by one the several devices—for example, for beginning a new line, for changing from lower to upper case, or for shifting the carriage so that letters shall not overlap—I have come to realize more clearly just what a writing machine has to do.

And indeed it seems that, for the person who is learning to know an object, meaning and perception, structure and function, *must* go together. Here, for example, is a certain plug at one end of the carriage which, it turns out, regulates the space between the lines. Now, I may contemplate this plug vaguely, or I may perceive it exactly. But I can not perceive it exactly without noting its connections and its precise setting; and in a perfectly clear perception of the setting, the function is *ipso facto* revealed.

The chairs and the typewriters are things of human use, and we know that a meaning has been put into them. Our consciousness is found, however, in the meaning that they have for us, as percipient subjects; and therefore the same analysis applies not less—or perhaps I should say, only less—to the objects of nature, for example, the mountains and the trees. The distinction of mountain and valley, however correspondent to outer fact, holds its place in our consciousness by virtue of the fact that, given our human powers of locomotion, the valleys are the great arteries of culture and communication. From the point of view of civilization the distinction of mountain and valley is vital. To the geologist it is relatively insignificant—a mere detail in the crumpling of the earth's crust. To the astronomer it counts for nearly nothing, except as the mountain furnishes a convenient site for an observatory. Apart from this consideration, an astronomer, really absorbed in his subject, might be supposed to be as imperceptive to the distinction of mountain and valley as Hegel is said to have been to the Battle of Jena.

And the trees. This illustration, as it happens, suggests to me another way of putting the matter. We can not disentangle our consciousness from the object so as to view it alone; neither can we disentangle the object from our consciousness. For suppose we ask what is the real tree, as viewed by impersonal science. Now, the aim of impersonal science is to get its object wholly disentangled from the subject, wholly divested of qualities that imply a human interpretation. If, then, we regard the tree as an organic unity which expresses a certain arboreal principle of life, it seems that we have not yet reached the impersonal view—certainly, if we judge by the general hostility of biological scientists towards vitalistic theories and their steady search for a mechanical explanation of life. But if we treat the tree as a mechanism, we seem driven in the end to define it as a collection of atoms. And then we face the question, What marks off the collection? In human experience the tree stands alone, in an

empty field; for impersonal science the same tree is only a part of a sea of atoms which includes the air as well as the tree. The atoms composing the tree are doubtless nearer together; and to us men this means collision and resistance when we try to walk through them. But imagine to yourself a physicist of divine insight, a physicist whose thought were so perfectly learned that with the vulgar he could not even speak. To him, it seems, the distinction of solid tree and empty air must be wholly insignificant. To him the tree and the air would be alike simply an expanse of atoms; and, having no scientific reason for distinguishing the specific differences of condensation and rarefaction, he could not even see that the atoms were differently grouped. In brief the tree must be to him, at most, what the man in the moon is to us—merely a convenient fiction; and if we are to speak of entities, then a nonentity, or nothing.

But I shall not myself say that the tree is nothing; or that it is nothing but consciousness. If consciousness is to be distinguished from the object, the object must be no less distinguished from consciousness; all that I say is that, from the point of view of the agent, they are not separable. If we look for the object in some separable, impersonal, non-conscious, non-human, and non-significant element, or "entity," in our experience, we shall never find it.

This brings me, however, to a general statement of my thesis. Hitherto I have kept in mind the point of view of the agent; and perhaps I have invited the objection that the existence of this point of view—or, for the matter of that, the existence of any points of view—is just the point in question. Very well, then: having obtained the facts which the point of view has to offer, we may now, if we like, pour the contents of all points of view into a loosely general world of fact and note simply a broad outstanding distinction. Everything in the world, we may say, undergoes two sorts of changes. (1) On the one hand, it suffers the changes that I have noted in my typewriter; that is to say, it passes from a thing of indefinite parts, or aspects, incoherently related, to a thing of relatively definite parts, coherently related. These changes it undergoes when brought into relation with some particular percipient agent—they represent the agent's view. (2) But on the other hand, it undergoes changes which seem to be independent of its relation to a particular agent. The real typewriter, as we call it, was never vague, never indefinite, and never incoherent; as an objective fact it is at any moment simply what it is; neither indefinitely nor incoherently so, nor yet, indeed (if our description is to be strictly objective), definitely or coherently. The changes which the real typewriter has undergone are somewhat as follows: the frame has lost some of its varnish; the parts are worn—which means that they now weigh less; and they have accumulated

dirt and rust. Such changes are irrelevant to changes in definiteness and coherence. Now, the series of changes indicated under (1) is consciousness. Viewing them as items in a general world of fact, and ignoring the point of view in which they are given, we shall have to say that these are changes in the typewriter quite as much as the changes of wear and tear; for apart from the typewriter they do not occur. If, then, we are to locate consciousness in a world of general fact, we must say that in these changes of the thing known we find our consciousness.

To characterize this conscious side of things I might perhaps use the word "meaning." But this word, as I have suggested, fails, as it is now used, to suggest with sufficient clearness that meanings, so far as they are meaningful, are personal; or that they are also bound up with changes in the object. The term "control" I reject as insufficient, because it seems to me to suggest, from the standpoint of a biological pragmatism, that consciousness is not for itself, but for something else; or that consciousness is exclusively forward-looking. From the standpoint of keeping the body alive, it may be that the future alone is relevant and real; but from the standpoint of the conscious realization of life, the past may be even more real than the future.

It seems to me that the peculiarity of the conscious side of things is best expressed in concrete terms by the words "familiarity" and "intelligibility" and by the contrast suggested by their opposites, "strangeness" and "opacity." I add familiarity to intelligibility because the intelligibility that I have in mind is personal intelligibility. Everything in our world has a certain degree of familiarity and intelligibility. That which is wholly foreign and inscrutable lies beyond our ken; at the most it gives us a vague impression of "something there." On the other hand, everything has a certain strangeness and opacity; in everything we reach a point at which it ceases to be transparent and intelligible. In the familiarity and intelligibility of things we find our consciousness and ourselves; in their strangeness and opacity, the limitations of our consciousness and of ourselves.

I know of no more striking illustration of the presence or absence of consciousness than in the changes which come over a place which is now familiar, but which was once unfamiliar. On the first day of a four-months' stay at Stanford University several years ago a colleague invited me to walk in the surrounding country. I returned with a few memories of details, a general impression of loveliness, and a vague, and largely erroneous, conception of geographical relations. In the course of many walks afterwards I gradually arrived at a clearer picture and a more exact orientation. But I had always

difficulty in adjusting my clearer knowledge of details to the ideas formed on the first day. This is a common experience. After becoming familiar with a place—or with a person—we always wonder at our first impression. "It is not the same place." And the point of the matter is that it is *not* the same place. The place has not merely "acquired an aspect of familiarity"—an aspect superimposed upon an otherwise unchanged content—but the place itself has changed. Yet all the while it has not, perhaps, "really" changed. The changes that go with familiarity mark the progress of consciousness.

To conclude, then—to the question, Where in the world is consciousness? I reply, Where in the world is it not? I have tried to show that consciousness is not "in the mind," but in the world; but, on the other hand, that consciousness is really in the world, and everywhere in the world. So far as the world is familiar and intelligible, there we find our consciousness and ourselves; and what is absolutely unintelligible is not in our world. Consciousness is not a casual relation between supposedly impersonal things. It is not a mere "relation" between "entities" more substantive than itself. In speaking of consciousness as a series of changes observable in things I have been adapting myself to what seems to be now the conventional necessity of using phenomenalistic language. But if I may use the realistic language which I prefer, I shall translate the series of changes into persons and say that persons are as real as anything else. In the familiarity and intelligibility of things I find myself; but I am myself no less substantive an entity, and no less of an immediate and original fact or phenomenon, than the things with which I am familiar.

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THE NATURE OF THE PSYCHICAL[1]

IN undertaking to discuss the topic selected by the committee for this occasion I wish to take advantage of the enabling clause which states that "no restriction is placed upon the freedom of participants in the discussion to attack the general problem by any methods which seem to them suitable—provided only that they establish some definite connection between their contribution and the recent reflection of others upon the subject." The "recent reflection of others" which I propose as my theme is the drift of neo-realistic speculation towards behavior as the key to the mystery of consciousness, and my special task will be an elaboration of the implications that seem to be contained in this tendency or point of view.

[1] Read at the meeting of the American Philosophical Association, Columbia University, December, 1916.

An approach to the problem of consciousness from the side of behavior is confronted at the outset with the necessity of choosing between two alternative modes of procedure. On the one hand, we may undertake to mark off the significant and differentiating features of the behavior called conscious by assigning to it a character that makes it qualitatively or generically different from other forms of behavior. On the other hand, we may attempt to minimize or rule out significant differences of this kind and attempt to place the distinctiveness of conscious behavior in the kind or the range of objects to which the organism responds. The latter mode of procedure is plainly involved in Holt's doctrine that consciousness consists of a certain cross-section of the environment, which is selected or marked off by a "specific response" of an organism, the specific response being defined as "a reaction which is definably distinct from its reaction to any other entity whatsoever."[2] Why the response in question is limited to the behavior of organisms is not altogether clear, since the reaction on gunpowder to the spark or of the anvil to the descending hammer would seem to be quite as specific as that of living organisms. Waiving this question, however, we encounter the more serious difficulty that the specific response apparently need not be a response to an *object* at all. The specific response is no doubt a response to something, but there is a significant difference between response to a mechanical stimulation, such as ether-waves, and response to a perceived object. This difference, it is evident, does not correspond to the distinction between the agency immediately affecting the sense-organs and some other more remote agency in the series of causes leading up to the final stimulation. To go back of the immediate stimulation in the series of causes would lead into an infinite regress, and any selection of a cross-section or set of objects as *the* object of response would be purely arbitrary. Conscious behavior, in so far as it is conscious, is not response to a causal agency at all. It is not response to something that precedes the response in the temporal order, but is response to an object or situation that is simultaneous with the response. The object of the response is something now present, and not something of an earlier date. On the other hand, the response, in a case of mechanical reaction, appears to be a response to a causal agency and nothing more. There is no response to an object, as distinct from causal agency, save as an object is conveniently provided by an obliging bystander. That is, the response to an object is to all appearances quite different from the response of mechanical reaction, and it is precisely this differ-

[2] *The Concept of Consciousness*, p. 180.

ence which must be emphasized and defined if we are to obtain a significant definition of conscious behavior.[3]

In support of the view that conscious behavior is of a distinctive kind it is possible to cite statements by other neorealistic writers, though at the risk, perhaps, of being reminded that even the devil can quote Scripture to his purpose. "Content of mind," says Perry, "must be defined as that portion of the surrounding environment which is taken account of by the organism in serving its interests."[4] In Marvin's language, "If an animal's reaction can be accounted for wholly by the chemical-physical effect of an object acting upon it, we should regard the reaction as a mere tropism or reflex. But if we could show that color, as color, or some relation between color and things implied by color (*e. g.*, a red flag as a sign of danger) controlled the reaction, we should have to call it conscious."[5] The statement that an organism "serves its interests" or that it reacts to "color as color" or to something "implied" by the color means either that the behavior is not mechanical or else that it is interpreted in terms of the aims and motives of an outside observer. The "interests" or the "something implied" are either not present at all in the sense suggested by the language of the quotations or they are present as future contingencies which have become concerned in giving direction to present behavior, which is to say that the behavior in question differs in an important respect from the mechanical behavior of purely reflex responses.

That conscious behavior differs in a significant way from other modes of response is suggested further by a consideration of the different ways in which the organization of the response is secured. In the case of reflex behavior the organization is provided by circumstances or agencies that date back to a remote past. The ability to execute adaptive movements of a reflex kind is a part of the equipment with which we are endowed from the start. In conscious behavior, on the other hand, the form of organization is dependent upon the exigencies of the moment. When the need arises, different and relatively independent forms of response or systems of discharge are brought together so as to constitute a unified form of behavior which will further the adaptation of the organism. These forms of response which furnish the material for the organized total response

[3] The tendency to rule out significant differences is characteristic of Holt's entire treatment. Thus the temporal order becomes just an instance of the logical, timeless activity of the neutral entities; error is explained as just a case of conflict or interference; and volition is a law and nothing more. With all allowance for the ingenuity of treatment, there is considerable ground for the suspicion that our problems are solved by being huddled out of sight.

[4] *Present Philosophical Tendencies*, p. 300.

[5] *A First Book in Metaphysics*, p. 262.

may have been acquired during the lifetime of the individual, and they may be responses either for complex objects, such as houses, trees, and automobiles, or for qualities like colors, sounds, and smells. Taken by itself each of these forms of response is presumably a physiological unit, like the reflex arc, but in the experiential situation it is associated with other such units so as to form a more complex total response. The form of organization for this total response is not determined by a mechanism antecedently provided, but has a peculiar flexibility, so as to suit the needs of the occasion. The process of organizing the different systems of discharge into a unified mode of response is directed towards the end of securing adaptation. That is, the activity is neither predetermined by inherited structure nor left to the mercy of chance association. The activity has a destiny and an aim, which means that there is present some sort of selection from among alternative associations or courses of action. In writing a letter, for example, or in untangling the line of our fishing-rod, we are somehow controlled by an end, and at no point is it possible to withdraw this control and leave the completion of the act to the mechanism of the bodily reflexes. The organization of the activity must be provided for continuously and is nowhere laid down beforehand by inborn connections within the nervous system. It is this organization of relatively independent systems of discharge, and not specific response as such, which constitutes the characteristic feature of conscious behavior.

This contrast between conscious and reflex behavior, it will be observed, presupposes the familiar doctrine that consciousness has its origin in the state of inhibition or tension which arises when a stimulation calls forth a number of conflicting responses. A new form of behavior appears, precisely because the mechanism of the reflexes has proved insufficient for purposes of adaptation. A new principle of organization or a new mode of procedure has accordingly become necessary; and this new principle consists essentially in a mode of organization that is directed or controlled with reference to an adaptation that is still to be secured. But if a future adaptation is to determine the character of behavior, it is necessary to take account of the meaning or adaptive value that the nascent activities would have if they were released and allowed to run their course. Regarded merely as mechanical reactions, these nascent responses are more or less on a par and constitute an equilibrium of forces. From the standpoint of possible or future adaptation, however, they may be widely unequal. The possible future result of our acts, therefore, must be brought into the present so as to provide the conditions for behavior that has reference to these results; and this peculiar transfer of the future into the present is accomplished in the conscious

situation. The various systems of neural discharge which enter into the given situation and which have become severally organized as a result of previous happenings, are, in a sense, a record of the past, but by virtue of this fact they are likewise a forecast of the future. The flame, for example, which has once burned the fingers, the rock which has once inflicted a bruise, the lump of sugar which has once gratified the palate, work a change in the nervous system, so that similar objects are greeted with a different organic response on all subsequent occasions. When the flame or the rock is again presented, the organism acts as though it were suffering the corresponding kind of injury, before the injury has actually been inflicted; and in a similar way the act of eating is rehearsed before overt action begins. By thus keeping a record of the happenings which it undergoes, the nervous system is able to report in advance, as it were, what may be expected of objects when they recur. The flame is something that will burn the fingers, the rock is something that will bruise, the sugar is something that will furnish nourishment. The perceptions corresponding to these inhibited reactions embody the adaptive value which these nascent activities would have if they were completed; they forecast the possibility of future stimulations and thus transcribe or translate into terms of present fact the conditions which must be taken into account for further adjustment. The perceived object, accordingly, is the environment in the guise of a condition for further activity. Generalizing this result, we may say that all consciousness is behavior directed or controlled by the environment with reference to a future result or a future adaptation.

As long as the individual is concerned with familiar objects or qualities, conscious behavior is able to proceed with a minimum of attention. We avoid obstacles in our path or seat ourselves on a chair with little effort in the way of determining more in detail the conditions that must be taken into account. Similarly the pencil on the table is picked up for purposes of writing, is put into the pocket, or is pushed aside, according to the nature of the occasion, but none of these possibilities is surveyed with care before the act takes place. Yet the perceived object, as determined by the character of the neural response, embodies certain possibilities or alternative forms of behavior, since otherwise the response would have the fixed character of reflex activity, and perception would not occur. Since consciousness is by hypothesis dependent upon the presence of conflicting responses, some transformation of the object or situation is necessary, some act of attention must occur. The precise nature of the situation must be determined more adequately, and this need may result in a more or less elaborate scrutiny. Before using the pencil to write, for example, we may pause to note its length and to observe whether it

has been sharpened properly. The same process may, of course, occur as a result of idle curiosity and with no thought of using the pencil for writing. In this event the pencil controls behavior by holding out a promise of release to certain activities of eye and hand. In any case the object or situation controls behavior by bodying forth the results of activities which are as yet in abeyance. And this interpretation applies equally, though perhaps less obviously, to qualities like colors and sounds. The process by which we learn to see colors is a process that involves a progressive building-up of complex forms of response. But the colors doubtless *feel* different from the start, which means that the different stimulations set off specific reactions. As an example of such specific reaction, in exaggerated form, I may cite the classic instance of the red rag and the bull. These reactions may tend to heighten or to lower organic activity, *i. e.*, these activities would be good or bad if permitted to run their course. It is in reactions of this kind, presumably, that we may expect to find a clue to the explanation of the esthetic qualities of colors. In the course of time a more or less elaborate form of response is built up for a given color, as in the case of more complex objects; and this response has embedded in it a host of associations, so that the perceived color furnishes the organism with a handle, so to speak, to a considerable range of further possible adaptations. In the case of memory there is a partial reinstatement of a previous response, but this reinstatement is of necessity fragmentary and determined by the circumstances of the moment. The earlier situation is not reinstated in all detail without modification; and, moreover, the recollection is tinged by association with events which happened subsequently, but which were future to it at the time. So far this description applies pretty directly to other experiences as well; the peculiar quality of pastness is perhaps due to a conflict between the physiological tendency towards total recall and the activities of the present moment, which is reflected in the experience of the event as irrecoverable, as past and gone. As long as we are on the plane of remembering, the present situation is necessarily different from the previous one; the greater our success in recalling the past the more complete is our failure to reinstate it. At any rate, recollection, like perception, apparently embodies or forecasts the outcome of nascent responses and thus shares in the function of exercising control over further behavior.

The nature of this control has already been indicated. To give attention is to respond to a result more or less dimly foreshadowed at the present moment; the situation as given needs to be enlarged or transformed, and this opens the way for the response of eye or ear or reflective thinking. Conscious behavior, accordingly, is a constant search for new stimulations or a progressive transformation of the

given situation so as to remold it nearer to the heart's desire. As contrasted with reflex action, conscious behavior is essentially experimental; its method is, at bottom, the method of trial and error. In listening to a noise, for example, the given fact which directs further behavior is indubitably a noise, but the precise character of the noise, as the noise of a passing street-car or the rumble of distant thunder, is still a matter for further determination. The reference of the noise to a source is temporarily suspended; the noise as heard is held on probation, as it were, pending the outcome of further listening. As a consequence there arises a contrast between what is given and what is still uncertain; and this contrast, it seems, is the basis of the distinction between the object and the mental or psychical. As Dewey has pointed out, the psychical in this sense is correlated with "intra-organic events, adjustments *within* the organism, that is, adjustments of the organism considered not with reference to the environment, but with reference to one another."[6] The psychical or subjective is not a distinct entity or existence, but is a necessary incident, phase, aspect, or "moment" of all conscious behavior. It is a name for any fact or set of facts with reference to its status as material for more complete determination in the interests of adjustment.

In conclusion I may add that the position so briefly and dogmatically outlined is in entire agreement with the view that the problem of consciousness must be attacked through a consideration of the facts of behavior. If, however, a consideration of these facts is to be significant and enlightening, it is the difference rather than the likeness between conscious behavior and mechanical or reflex reaction that must be emphasized and interpreted. And this difference, as I have ventured to urge, lies in the reference to future results or ends. An interpretation along these lines enables us to avoid the pitfall of historic dualism and gives promise of securing to intelligence its rightful place in a world where ends or purposes are genuine and distinctive factors in the processes by which living organisms maintain themselves and convert the resources of a changing environment to their use.

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[6] *Essays in Experimental Logic*, p. 227. *Cf.* also Dewey, "Perception and Organic Action," this Journal, Vol. IX., p. 645; and Mead, "The Definition of the Psychical," *Decennial Publications of the University of Chicago*, Vol. III.

THEORY AS TRUTH: A CRITICISM

I WISH to point out what seems to me certain fundamental difficulties in a well-written paper in a recent number of this JOURNAL.[1] The thesis to be established is that theory, the last stage in knowledge of the scientific type, the other two of which are guesses, possible knowledge or hypotheses, and laws or probable knowledge, is as true as fact.

The first difficulty and the one which might cover all the others is the assumption, common to those of the idealistic persuasion, that truth is a completed totality of subject-matter. This assumption in itself might be accepted on condition that nothing more be said, but something more is said; therefore the difficulty. Assuming the totality, how is it possible to admit of the question as to the genuineness or of the hypothetical nature of the same? It is assumed as genuine, certainly, and on such an assumption the problem of error can not be admitted. In other words, knowledge can not be of the three degrees —possible, probable, and fact—on the assumption of a completed totality. If a completed totality is true, then we have in advance all that we can ever hope to get by following knowledge through the "stages"; if it is an hypothesis, if it is a guess or possible knowledge, we can not use it as a means of testing the other stages or as a limit to which knowledge approaches.

Coming to the more specific questions in the paper, we find that, though the nature of the case forbids that questions of theory can be answered by facts, "when the theories which answer them, however, are submitted to the scrutiny of logic it appears . . . that they have a certainty of the same order as that of *any bit of experience.*" Logic, that is to say, is taken from the completed totality and is made a standard by which the totality itself is measured, with the result that certainty of the same order as that of any bit of experience is reached. The certainty of immediate experience is the criterion for judging of the certainty of something avowedly not immediate, something "that we can never hope to reach with our senses, with matters beyond the reach of immediate experience." It is by no means clear what is involved in the term "certainty" when we speak of certainty in any bit of experience.

Another question is the relation between hypotheses and theory. When are we to know whether we are dealing with an hypothesis or with a theory? Is this which I have before me (a scientist might ask) a theory, a law, or an hypothesis? The scientist can not be trusted to give us accurate information, for "theories have not been defined." One test is "workability," but this is not *the* test, for theories "pos-

[1] Vol. XIII., p. 236.

sess a certainty wholly beyond that inherent in their workableness." The nature of this certainty, wherein it consists, how it is known, how we get at it, we are not informed except with the general remark that theory is as true as fact. Just how true a bare fact is does not answer a question, but states a problem. It may be that logic is the test, for theories are "logically different from laws and hypotheses." To say, however, that a square is logically different from virtue, does not give us much information either about a square or virtue. A system may be logical and still not be true. One might build up a system on any chosen set of axioms. Logic certainly can not dictate the kind of world we shall have, for life is bigger than logic.

How do theories come to be, how do we get them? "The experiment of Young [on light] *'properly interpreted'* would have led to a certain theory, a certain truth—the undulatory theory of light." One way at least to get truth is to interpret an experiment properly. The question and the whole point is to determine a proper interpretation. It can not be "workability," for there is something "inherent," but what this "something" is we are left to imagine. If we imagine it to be consistency, the reply might be made that consistency applies to error as well as to truth. If we imagine a completed totality of subject-matter, we are assuming the very point we are seeking to make and are consequently dealing with guesses or hypotheses and not with theories. We can not reach theories by induction, because induction gives us laws only.

After the fact we may look back and see that our hypotheses were not true, but *before the fact,* they surely seemed true or they would not have been projected. Before the fact the "certain wholly beyond that inherent in their workableness" was a doubtful sort of certainty, but after the fact—after the crucial experiment—the doubtful certainty grew large and would never have been otherwise had the former experiments been "properly interpreted."

We are told that scientific facts and laws or sets of laws render certain a truth. "Another law is discovered which renders certain a little more of the truth and does away with part of the over-belief. When enough laws have been discovered, the situation becomes closed—within this small area we have truth—within these limits there is nothing more to be said." If the history of philosophy has taught us anything, it surely has taught us to regard "this small area" with suspicion. How many "truths" can we put our fingers on that are "fixed"—that never have been reconstructed and modified, and further that never will be? As a matter of practise, we have learned that our ideas are all hypotheses, that they are satisfactory plans of behavior *thus far,* but we have no lease on the future.

Enough laws, we are told, close a situation, but it seems that we have never found enough laws in the whole history of thinking to close any question. About the time we get settled to a transaction of business, a Copernicus or a Darwin steps in and destroys all the old stock in trade.

In Part III. we have theory defined—"the conditions without which a certain law, or set of laws, could not even be possibly true. It is *this* that is as true as a fact. If we attempt to carry this definition into any concrete case of science, we are in the predicament of having so much on our hands that we can do nothing with any of it. If we were called upon for the conditions without which the laws of color vision, for example, could not even be possibly true, we might give answers running in scope all the way from Mexican revolution to the existence of God—either, the sun, a nervous system, stimulus, retina, and a thousand of other things, the absence of any one of which would spoil the whole performance. That which is as true as fact turns out to be so general that it covers all particulars and consequently gives us no clue to a determination of any one.

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REVIEWS AND ABSTRACTS OF LITERATURE

Hauptwerke der Philosophie in originalgetreuen Neudrucken. Band V. *System der Logik.* JACOB FRIEDRICH FRIES. Durchgesehen und mit gänzlich neu bearbeitetem Namen und Sachregister herausgegeben von der Jakob Friedrich Fries Gesellschaft. Leipzig: Verlag von Felix Meiner. 1914. Pp. xx + 454.

Of late it has been frequently noted that contemporaneous philosophic thought consists very largely of the revival, in more or less fragmentary fashion, of classic philosophies. We have current disciplines derived from Kant, Fichte, Hegel, and Reid, and the recent publication of the second series of the *Abhandlungen der Friesschen Schule* attests the fact that interest has been renewed in the philosophy of Fries. Since Fries's logic incorporates a considerable portion of his philosophy,[1] a reprint of his treatise on logic will be welcomed; and perhaps an added interest is due to the criticisms of Fries in the volume of Bolzano's *Wissenschaftslehre* reprinted as Volume IV. in the preceding series.

Fries's position, which has been described as empirical idealism, is perhaps most easily penetrated by inquiring into his concept of science. A whole of knowledge, ordered and complete with regard to the subordination of the particular under the general (§§ 19, 66) is

[1] *Cf.* Walter Mechler, *Kant Studien, Erganzungshefte* No. 22.

called, with reference to its form, a system and with reference to its matter, a science (p. 206). Such a whole consists of principles or supreme universals, that is, *fundamenta*. Scientific knowledge, then, is a system of principles. The doctrine of the whole of knowledge in its relation to the scientific whole is developed in Sections 78, 79.[2] In Section 111 Fries classifies sciences with respect to certainty, attributing the same objective validity[3] to assertory cognitions of empirical facts and apodictic cognitions of general laws.[4] Thus, narrative sciences such as history and descriptions of nature possess the same complete certainty as mathematics and philosophy; discursive sciences such as psychology and experimental physics are less certain, being dependent upon probabilities (pp. 372, 246–249). With this classification it is natural for Fries to associate a theory[5] of probability[6] including mathematical probability (§§ 100–102) and philosophic probability (§§ 103–105) and error (§§ 106–110). In Section 113 Fries discusses the reduction of knowledge to principles. In particular, he points out that immediate knowledge is the constitutive principle of a science as distinguished from the logical and the anthropological. To illustrate, the constitutive principle of pure mathematics is pure perception, *e. g.*, in geometry, the perception of infinite space; the anthropological principle is the productive imagination[7] as the faculty of mathematical perception. The logical principle of a mathematical discipline consists of its fundamental concepts, axioms, and definitions. The simplest (pp. 208, 209) and most evident (p. 241) principles are the mathematical (p. 410). Fries's discrimination (p. 316) between knowledge as completely certain and knowledge as dependent upon probabilities is precisely his distinction between the immediate cognitions of reason and the mediate cognitions of the understanding which, as he explicitly states (p. 259) is of a generality unknown to Kant.

Fries's concept of logic is determined by a formal subdivision (p. 248). Sciences of reason are divided into mathematics and philosophy; these may be either pure or applied. Philosophy is the science of mere concepts; mathematics is the science of the construction of concepts in pure perception. Corresponding to Kant's analytic and synthetic judgments (pp. viii, ix) philosophy is subdivided into logic and metaphysics. This distinction is explained in

[2] *Cf.* pp. 230, 370, 373, 374.

[3] *Cf.* p. 243.

[4] *Cf.* pp. 244, 245.

[5] *Cf.* J. F. Fries, *Versuch einer Kritik der Prinzipien der Wahrscheinlichkeitsrechnung.* Braunschweig, 1842.

[6] Part II., Chapter III.

[7] *Cf.* pp. 45, 46.

pages 129–132. Logic is the science of concepts springing from reflection; metaphysics is the science of concepts springing from immediate pure reason. Logic is either pure or applied. The pure is subdivided into the demonstrative (formal, philosophical) and the anthropological (historical). The formal logic is dependent upon the anthropological (pp. x, xi). Fries maintains, in opposition to Kant, that it is quite impossible to set up formal logic apart from the anthropological (pp. 4, 5) and consequently he would hold that formal logic in its more highly specialized form, namely, the algebra of logic of Boole, Peirce, Schroeder must remain artificial and one-sided. One recalls here Windelband's criticism[8] of Boole's *Laws of Thought*. Following the preceding classification, Fries discusses anthropological logic (pp. 24–125), philosophical logic (pp. 129–221), and applied logic (pp. 240–449). The part devoted to applied logic is divided into three sections; these deal, respectively, with the relation of thought to knowledge, the elucidation of knowledge, and the theory of method. The doctrine of method is intended to amplify the theory of Kant (p. vii); whereas in the first part of the applied logic the theory of feeling of Jacobi is adapted.

The principal question of logic according to Fries is: "What are concepts, judgments, inferences, system?" To answer this question Fries develops a theory of representations (ideas) and their abstraction and comparison. This exposition is highly psychological. He describes a representation as an activity of mind which belongs to knowledge (cognition). It will be quite impossible to proceed with Fries's classification of representations without devoting an excursus to Fries's theory of cognition, especially the doctrine of the upper and lower currents of thought, which is fundamental for his entire development.[9] The inner stream of thought (p. 52) consists of two currents. The upper or voluntary current is determined by reflection; the lower or involuntary current is determined by association. The faculty of reflection is the understanding; the sole function of the latter is the repetition of that which is given by reason (p. 132). Somewhat differently expressed, the purpose of thought (p. 54) is to bring back to consciousness cognitions we have "in us," that is, the essence of thought is the repetition of cognitions given by the reason. Contrasted with the preceding faculties of knowledge (association and reflection) are the immediate faculties of cognition, namely, the pure consciousness of self, mathematical perception, and pure reason in a restricted sense (§ 11). Self-cognition presupposes the entire

[8] W. Windelband, *A History of Philosophy*. Translated by J. H. Tufts (second edition), pp. 629, 639. Windelband's remark is somewhat analogous to Matthew Arnold's view of mathematics as contrasted with "fresh learning."

[9] § 19; *cf.* pp. 127, 259, 269, 275, 316, 341, 370, *etc.*

content of "our" knowledge (pp. 240, 241) and is identified with consciousness (p. 38); it is the pure consciousness of self qualified by the sense-perception of the inner sense (p. 39). The reason is the source of the sense-perceptions and consequently of empirical knowledge and as pure reason is the source of the apodictic laws of mathematics and philosophy (pp. 421, 258). The reason is the immediate spontaneity of knowledge; the faculty of reflection is mediate. On this assumption Fries bases his distinction between perceptual and conceptual knowledge (pp. 63–66). Abstraction[10] and comparison, corresponding to the lower and upper currents of thought are associational and reflective, as is also relation.[11]

Fries's classification of representations may now be set forth. Every representation has a dual aspect: subjective, *i. e.*, the act of representing, and objective, *i. e.*, that which is represented (p. 25). With regard to their objective aspect representations are either problematic (mediate) or assertory (immediate). The object[12] is the individual determined by an assertory representation; *e. g.*, "a triangle," "this triangle," "every triangle" denote objects, but not "triangle" which is a general representation (§ 22, p. 271). Subjectively, representations are either dark or clear (§ 9, p. 35). The immediately clear are called perceptions and the mediately clear are called conceptions (p. 64). Conceptual representations, in turn, are either dark, clear, or lucid (§ 23). The source of clear representations is threefold: sense-perception, mathematical perception, pure reason.[13] Underlying mathematical perceptions are representations of space and time (§ 16) and at the basis of the representations of pure reason are the representations of synthetic and analytic unity which spring from the spontaneity of reason (p. 69). The abode of the dark representations appears to be the lower current of thought.[14] The term "latent" seems preferable to Fries's "dark"; presumably Fries means by dark representations those which are not explicitly recognized. Between the immediately clear and mediately clear representations are the esthetically lucid representations based on feeling.[15]

In Fries's classification of representations, it must be confessed, there is much that is unnecessarily psychological and burdened with difficulties analogous to those attached to the "inner sense," "understanding," and "pure reason" of Kant. Genetically, Fries's

[10] *Cf.* Meinong, "Abstrahieren und Vergleichen," *Zeitschr. für Psychologie und Physiologie der Sinnesorgane*, Vol. XXIV., p. 72.

[11] Pp. 48, 67, 74, 87, 88, 113.

[12] Pp. 27, 55, 276, 371; §§ 29, 37.

[13] Pp. 53, 54, 242.

[14] *Cf.* pp. 42, 43, 268, 269, 276.

[15] §§ 80–82; p. 273.

discussion seems inadequate; for his development of a clear representation from a dark one is not evolutionary; representations, clear or dark, are "in us"; a dark representation is merely one that is not perceived by the inner sense (pp. 38, 40). This position in its non-creative aspect seems Platonic. The preceding defect of Fries is further emphasized by his concepts of new and invented representations. The former "penetrate us" favored by sense-stimulation (p. 40); the latter are merely variously ordered repetitions of given representations, *i. e.*, are combinatory[16] in a mathematical sense.[17]

The domain of a representation is applied by Fries only to concepts. The latter are classified (§§ 20, 26) with regard to "magnitude" (p. 76) which is either intensive or extensive. The intensive magnitude of a concept is called the content (*Inhalt*) and the extension of a concept is called the domain (*Umfang, Sphäre*). The form of the domain of concept is of mathematical origin.[18] With regard to the domain of a representation a very marked and valuable advance over Fries was made by Bolzano.

In the gradation of the clearness of representations reference was made to feeling. The distinction between feeling and concept Fries regards as one of the most important in philosophy; their confusion has resulted in mysticism.[19] The concept as a mediate representation is dependent on perception and feeling. Feeling is one of the activities of the faculty of judging.[20] In Section 84 a doctrine of truth-feeling is developed; three kinds of feeling are mentioned, two of which are not subject to error (p. 341) and are immediate, unanalyzable. The mediate truth-feelings are mainly the expressions of practical tact and conscience and are analyzable into inferences; here again reference is made to the upper and lower currents of thought (§ 19). It seems worth while to recall here the *dunkles Vorgefühl* mentioned by H. Grassmann in the philosophical introduction to his *Ausdehnungslehre*.

In an elaborate discussion of error (pp. 340–369) Fries holds that the immediate cognitions of reason are free from error; that error in logic consists of erroneous judgments[21] and thus depends upon (incomplete) inferences of probability (p. 316). In Section 109, which is devoted to paralogisms, Fries remarks: "Important explicit rules for avoiding these mistakes can not, in general, be given." Cer-

[16] This seems to be the ordinary chess-board theory of mathematical novelty; *Cf.* W. F. Meyer, "Kant und das Wesen des Neuen in der Mathematik," *Archiv der Mathematik und Physik*, Vol. 8, 1905, p. 287.

[17] Pp. 46, 62, 70, 72, 409.

[18] P. 385; *cf.* p. 246.

[19] Pp. 241, 363, 379.

[20] § 82; *cf.* p. 321.

[21] *Cf.* p. 341: "dark inferences."

tainly, since Fries's time, a remarkable advance has been made through the work of Zermelo[22] and Russell,[23] who have constructed theories for the evasion, at least, of antinomies.

Representations may possess truth, for in the earlier part of his treatise (p. 26) Fries states that the objective validity or truth of assertory representations consists in the agreement of the being of things with their representation. In Section 94, however, this explanation is pointed out as useless for logical purposes. The truth of assertory or empirical knowledge (§ 77) is the agreement (pp. 308, 309) of mediate with immediate knowledge. The real truth of judgments is distinguished (§ 42) from the formal truth or consistence of representations. Elsewhere[24] Fries says that the truth is judgments is conformability to law in "holding-to-be-true."[25] Independent of the truth of logic is the truth of reason, which consists of the agreement of knowledge with its object. The apodictic cognitions are subjectively universally valid (pp. 243, 372); empirical knowledge is subjectively contingent, since its objects vary with the individuals.

The designation of representations by means of symbols forms the subject of an instructive chapter (pp. 277–297). Fries carefully points out that in philosophy the notations are the ordinary signs of language, namely, words, and that attempts, *e. g.*, by Leibnitz, Wolf, and Schelling, to designate philosophic knowledge by means of schematized representations analogous to the mathematical are doomed to fail. This reminds one of the mathematicians' lack of appreciation of the verbal technique of philosophers.[26]

Plainly, the nucleus of Fries's development is found in the opposition "mediacy" and "immediacy"; this is applied to clearness (§ 5), faculties of cognition (§ 11), representations (§§ 19, 22), synthesis (p. 85), cognitions *a priori* (p. 245), faculty of judging (p. 269), symbolic representations (p. 284), *etc.* The preceding opposition is, of course, of interest at the present time.

Fries is[27] an initiator of critical mathematics. In a recent address Fries's mathematical notions have been summarized by

[22] *Mathematische Annalen*, Vol. 65, p. 261.

[23] *Principia Mathematica*, Vol. I., p. 63; *American Journal of Mathematics*, Vol. 30, p. 222.

[24] § 106, p. 340.

[25] *Cf.* pp. 93, 118–119, 319.

[26] See, for instance, E. Study, *Die Realistiche Weltansicht und die Lehre vom Raum*, p. 22; Bergson, *Revue de Mét. et de Morale*, Vol. 16, p. 32.

[27] *Cf.* G. Hessenberg, *Sitzb. der Berl. Math. Ges.*, Vol. 3 (1903), pp. 21–28. This mathematician is one of the editors of the present series of the *Abhandlungen der Friesschen Schule;* the well-known mathematician Schlömilch was one of the editors of the former series.

the mathematician L. Koenigsberger.[28] Remarks on mathematics are closely woven into Fries's exposition of logic, no doubt in attempted conformity with the dictum that "an uncompromising mathematical spirit is the only preparation for the entrance of correct philosophy" which "has to do with the nature of things" (§ 40). Apparently Fries conceives of mathematics peculiarly as a science of quantity,[29] an interpretation which has been rejected by Boole and more recently by others,[30] such as Russell. Fries describes the philosophy of mathematics as an inquiry into the significance of mathematical knowledge in the whole of "our" convictions (§ 99 and p. 378). Harmonizing with Fries's remark[31] that errors are sometimes made in philosophy and mathematics, two mistakes in his treatise must be mentioned. The Kantian doctrine that there is only one space and one time is endorsed, although Fries rejects (p. 58) Kant's definition of time as the form of the inner sense. The Kantian theory of space has been widely rejected[32] and even the neo-Kantian restriction of Kant's space to the Euclidean seems inadequate. What seems to be the proper modification of Kant's space is suggested by the fragmentary conceptual space[33] which underlies the Euclidean, Lobatcheffskian and Riemannian spaces. A second error is Fries's confusion (p. 78) of continuity (see pp. 374, 375, 233) in a mathematical sense with density. This problem has, of course, since been solved by Dedekind, Cantor, Weierstrass in Germany and J. Tannery[34] and Méray in France.

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Advertising and its Mental Laws. HENRY FOSTER ADAMS. New York: The Macmillan Company. 1916. Pp. 333.

The psychology of advertising can thank Mr. Adams for a book containing new determinations of fact in surprising abundance. Experiments are given which are methodically correct and, for the most part, statistically sound, to show the number of items which can instantly be apprehended on a page; that the upper and left-hand part of a page is the first to be seen, and is best remembered; that attention is arrested by size almost in proportion to the size; that each

[28] *Sitzungsberichte der Heidelberger Akad. der Wiss.*, II.A, 1911, No. 9.

[29] See pp. 63, 409, 410.

[30] On the other hand, these more modern authors have phrased their definitions of mathematics too broadly, ignoring the necessary *numerical reference* (mediate or immediate) of mathematical conceptions.

[31] *Cf.* pp. 319, 372.

[32] See E. Study, *loc. cit.*, p. 68; O. Hölder, *Anschauung und Denken in der Geometrie*, pp. 3, 26.

[33] This JOURNAL, Vol. 11, p. 173.

[34] In the first edition of his *Theory of Functions of a Real Variable.*

successive appearance in repetition commands less attention; that orange, red, blue, and black are the first colors to catch the eye; that if pictures of various objects are put in competition with mere patches of color the pictures of shoes and stockings are the only ones which can win the attention away from the colors; that whole pages are remembered better than a number of immediate repetitions of smaller advertisements sufficient to fill the same space, but not so if the smaller units are variations from one another instead of mere duplications; that when general terms like "shirt" or "soap" are given there are an astonishing number of association-responses containing the name of some one well-advertised product; that the attractiveness of a food advertisement is enhanced if it is presented in the company of other advertisements of foods; that the right-hand page arrests attention and is remembered better than the left; that photographs are better remembered than drawings, but that pictures of persons must face the right way in order to be remembered. There is a thorough treatment of the pleasingness of colors, and of line, form, and mass. Together with this remarkable array of new experimental findings there are liberal quotations from the work of Strong, Hollingworth, Scott, Gale, Starch, Shryer, and Münsterberg.

In view of the value of these contributions students of the psychology of advertising can afford to overlook, though they may not relish, a very inadequate attempt to present some of the fundamentals of psychology to the lay public and occasional lapses such as the statement that "in the eye are still other special structures, called end organs, some of which are stimulated by rays which produce impressions of red, others of yellow, others of green, others of blue, others of white and still others of *black.*" On the other hand, it can not be expected that practical advertisers will be equally charitable toward an academic writer who gives such evidences of carelessness as the statement that "it must be borne in mind that a mail-order business appeals to a very small number of persons at best," or who describes an advertisement in which the picture of a white refrigerator was printed on *yellow paper* in order to bring out by color contrast a pure, cold white, or who, after a few quotations in the introductory chapter, makes the remark that "the general conclusion which we are forced to accept by these considerations is that advertising will pay if it is done correctly." There is a brief chapter on the different kinds of mediums which is utterly inadequate, devoting eight lines to outdoor advertising and five to letters and catalogues, but which concludes, nevertheless, by declaring with finality, that "their good points and their bad points, from the psychological side have been pointed out."

The attempt (one of the three aims set forth in the preface) to

establish a relationship between experiment and practise in advertising limps forlornly for want of data on the side of practise.

Great stress is laid upon Hollingworth's experiment with abstract appeals and the author's repetition of it. "It may be considered as showing the relative strength of the various interests of the subjects when *they are in the advertising frame of mind* (author's italics) which is exactly the sort of information the advertising man should desire. This frame of mind is brought about by the fact that they know they are being experimented upon in an advertising experiment." Yet at another point there is a general indictment of the whole order-of-merit method upon which this experiment rests, for "the general conclusion which we seem forced to accept is that the order-of-merit method is not a very adequate method of testing the business value of advertisements. Where it is possible to obtain accurate business measurements, the laboratory test, using students as subjects, appears to be quite inadequate."

On the whole, in spite of the very great value of Mr. Adams's original experiments, his ineptness in presentation can hardly fail to arouse in practical advertisers distrust and antagonism not only toward his book, but in general toward all experimental investigations of advertising. This result is very much to be regretted, for an adequate realization by the business community of the possibilities latent in such investigations would certainly lead to great economies.

The illustrations in the book are few and poor in quality; there are textual references to some which do not appear.

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The American College. Edited by WILLIAM H. CRAWFORD. New York: Henry Holt and Company. 1915. Pp. 194.

The scope of *The American College* is well described by its second title as "a series of papers setting forth the programme, achievements, present status, and probable future of the American college." The book is composed of eleven papers read at a Conference on the American College held on the occasion of the celebration of the one-hundredth anniversary of the founding of Allegheny College. The papers were read by President Faunce, of Brown University, Professor Shorey, of the University of Chicago, Dean Haskins, of Harvard, Professor Conklin, of Princeton, President Rhees, of the University of Rochester, President Thwing, of Western Reserve University, Commissioner Finley, President Few, of Trinity College, North Carolina, President Slocum, of Colorado College, and Commissioner Claxton.

The names of the writers of the papers included in the volume are almost sufficient guarantee that the book would exhibit vigorous thought and felicitous expression. There is, as is to be expected, considerable repetition of the basic conception that the American college as a separate and distinct educational institution finds its chief mission in the preparation of men and women—mainly men, to be sure—not for making a living, but for living a broadly conceived, intelligently directed, nobly motivated, and socially devoted life. And it is just here that a suspicion of Phariseeism in the papers creeps into the reader's mind, as the impression is sometimes given that the college alone is devoted to such a noble aim; for what agricultural and mechanical college or most cumbersome and comprehensive state university would not express this as the most important aspect of its complete ideal! But this impression is quickly dispelled by the balanced, thoughtful, and thought-provoking presentations of the claims of languages, literature, and the physical and social sciences to be the core of a truly humane education and of the college to be a fitting instrument for its achievement. There is little in the book of the spirit of mere self-commendation and there is much of the spirit of crusade against contemporary materialism and commercialism, for which the titular leaders draw inspiration out of a truly distinguished spiritual ancestry.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. November, 1916. *Jus Naturale Redivivum* (pp. 761–777): MORRIS R. COHEN.—That the reassertion of "Natural Law" in a form in harmony with modern thought is scientifically possible, "I shall try to show by a critical examination of the four usual arguments against the theory of natural law, namely, the historical, the psychologic, the legal, and the metaphysical." *The Problem of Objectivity* (pp. 778–787): ALFRED H. JONES.—Two attempts, that of Reid and that of the new realists, have been made to apply the German method that thought and reality are one to the British problem of objectivity. Reid in his constructive work drifts back into the abandoned doctrine of ideas. The new realism is not incompatible with teleological idealism. *The Origin and Development of Persons* (pp. 788–800): ERNEST A. RAYNER.—The difficulty in earlier accounts of personality lies in the exclusive use of the methods of logic. The attempt is here made to explain personality in the light of evolution. "As the genetic contribution can not complete the statement of the problems of personality, neither can the logical statement make a beginning without the genetic approach." *The Non-Sensuous Knowledge of Reality* (pp.

801–817): L. P. CHAMBERS.—A study in neo-realistic epistemology with special reference to the "neutral stuff" theory of Holt as developed in his "The Concept of Consciousness." There follows an enumeration of the puzzling situations explained by such a conception. *The Relation of Personal to Cultural Ideas* (pp. 818–836): CHARLES E. HOOPER.—The topics herein discussed are: Social logic *versus* solipsism; terms, ideas, and object-matter; the logical extension of ideas; standard cultural ideas; concrete and abstract ideas, as related to subject and predicate, respectively; the implication of ideas, cultural and personal; the cultivation and weeding out of ideas; ideas of causation and ideals. *Notes: Josiah Royce.* CHARLES A. BENNETT.

Leibnitz's *New Essays Concerning Human Understanding,* translated by A. G. Langley. Chicago and London: Open Court Publishing Company. 1916. Pp. xix + 861.

Mercier, Charles A. On Causation and Belief. London and New York: Longmans, Green, and Company. 1916. Pp. xii + 228. $1.40.

Temple, William. Mens Creatrix. New York and London: The Macmillan Company. 1917. Pp. xiii + 367. $2.50.

Werner, Charles. Etudes de Philosophie Morale. Genève: Librairie Kundig; Paris: Librairie Fischbacher. 1917. Pp. 249. 3 Fr. 50.

NOTES AND NEWS

THE *Revue de Metaphysique et de Morale* for January, 1917, contains a sketch of the career of Théodule Ribot (1839–1916) from which the following statements have been extracted. Ribot began his professional career as professor in various *lycée.* In 1872 he gave up teaching to devote himself entirely to the new studies of which he had just outlined the programme in the preface to *English Psychology of To-day.* This incisive document which had considerable vogue with the new generation separates sharply psychology as science of facts from such nominative sciences as logic and ethics and from metaphysical speculations. He had in mind especially the thin and unsatisfactory analyses of the eclectic school, the rather conventional description which took into account only the white and civilized adult. The same criticism had been expressed in other lands, but what distinguished Ribot's conception and made his work effective was to see among all possible lines of investigation the one which led most directly to effective results, namely, the study of pathological cases. *The Diseases of the Memory, of the Will and of Personality,* which appeared in a number of editions, showed at once

how much in the way of discovery might be expected along these lines, and gave French psychology its superiority for a considerable time. After a long period wholly devoted to research he realized the utility of again taking up teaching. Professor of experimental psychology at the Sorbonne from 1885 to 1888, then at the Collège de France, 1888 to 1902, he became interested in various subjects of which the traces are found in his books on *Attention*, on the *Psychology of the Emotions*, on the *Evolution of General Ideas*, on the *Imagination*, on *Psychologie Affective*, and on the *Logic of the Emotions* (which he insisted was, in spite of its title, a chapter in psychology). All these titles are far from making a complete catalogue of his works. He did not, however, like either speaking in public or the preparation of his courses, which he gave only for practical reasons, because he saw in them the means to a quicker diffusion of new ideas. He had announced for a long time that he would not keep a professional position when he had passed the age of 60. Almost on the very day he gave up without regret his chair at the Collège de France. It is true that he left it to be occupied by Pierre Janet, on whom he could depend for the future of his work, and he saw himself replaced at the Sorbonne by Georges Dumas, another of his pupils and a not less devoted follower. From this moment he devoted himself to the labors of the *Académie des Sciences morales et politiques*, of which he had been a member since 1899, and to editing the *Revue Philosophique* which he had founded in 1876, the same year in which *Mind* was launched.

THE Southern Society for Philosophy and Psychology held its twelfth annual meeting on April 12 and 13, 1917, at Randolph Macon Woman's College, Lynchburg, Va. It was voted to extend the scope of the society so as to include "experimental education," and to hold the next meeting at Peabody College for Teachers, Nashville, Tenn. The following officers were elected: President, Professor E. K. Strong, Jr., Peabody College; Vice-president, Dr. T. V. Moore, Catholic University of America; and Secretary-Treasurer, Professor W. H. Chase, University of North Carolina. The newly elected members of the council are: Dr. Tom A. Williams, Washington. D. C.; Professor F. B. Crooke, Randolph Macon Woman's College, and Professor Knight Dunlap, Johns Hopkins University.

DR. GEORGE R. WELLS, associate professor of psychology in Oberlin College, has been appointed to a new professorship in psychology in the Ohio Wesleyan University, and will assume his duties in September. A psychological laboratory, housed in a separate building, has been provided and is being equipped at the latter institution.

MRS. CHRISTINE LADD-FRANKLIN gave three lectures on "Logic" at Columbia University on April 30, May 1, and May 2.